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Book Review
The new fundamentals: how less may mean more?

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REVIEWED BOOK

"Tietz Fundamentals of Clinical Chemistry and Molecular Diagnostics"
7th Edition, edited by Carl A. Burtis, PhD and David E. Bruns, MD.

RECENSION

Sometimes the name of a professional becomes a brand for some medical specialties and it is no surprise that readers call outstanding textbooks by the first authors name. This happenned with several authors like Kanski in ophtalmology and Colman in the field of haemostasis. Luckily laboratory medicine has its own brand name author: Norbert Tietz. Now, but there is the rub, what is actually laboratory medicine? This is extremely important when we cover this field in a textbook. According to recent intitiatives of the International Federation of Clinical Chemistry and Laboratory Medicine (IFCC) our discipline should cover the vast repertoire of laboratory medicine. Even more so, in a recent survey it was figured out that aside from clinical chemistry a large percentage of the IFCC members also practice hematology, blood coagulation, immune diagnostics and many are also doing microbiology as well. Thus, it is likely that for specialists of our discipline and for our students the Tietz Fundamentals will not be the only source, however, it is probably the most widely experienced laboratory area and thus a particularly important source of learning.

The most recently completed volume of the new textbook of Clinical Chemistry and Molecular Diagnostics is proudly called as usual 'the Tietz Fundamentals'. Indeed, professor Tietz was extremely enthusiastic when, many decades

ago, he published the first edition of 'The Fundamentals of Clinical Chemistry'.

Aside from the many other disciplines that laboratorians practice today, it is evident, that 100% of all IFCC members experience clinical chemistry, so a new Fundamentals was surely required. Nevertheless we have to make distinctions between two series bearing the name of Norbert Tietz. The Fundmantals and the Textbook. There is a twofold difference in the volume of these series, but when one actually compares the content it is obvious that the Fundamentals is a really fine student friendly and professional condensation of the Textbook. It has also become evident in the past decade that even the fundamentals can not live without a session on molecular diagnostics, hence the seventh edition is comprising of this session in addition to the classical clinical chemistry part.

The structure of the book follows the well established chapters: (i) principles of laboratory medicine, (ii) analytical techniques and instrumentation, (iii) analytes (iv) pathophysiology (v) molecular diagnostics and (vi) reference information. All these were completed within the size of little over a 1000 pages. It is always difficult to decide what should be part of the 'fundamental knowledge' in clinical chemistry, this books tries to cover all state of the art parameters and when one does not find some lab tests among the analytes than the reader should look at the pathophysiology session where the significance of some assays–like cystatin C–are outlined with their pathophysiological contexts. Although many laboratories may not be able to do more esoteric tests, they should all do appropriate specimen collection, and avoid preanalytical errors as well as execute the clinical evaluation of the methods and do all clinical chemistry assays according to the basic principles of evidence based laboratory medicine. All these issues are covered in separate well-documented chapters at the beginning of the book dealing with the principles.

The outfit of the book is modest, each chapter is composed of the Objectives followed by the Key Words and Definitions and at the end of each chapter the reader finds a set of usually 10 review questions and the References. The printing techniques used red as a highlighting color and the easily comprehendable graphs are composed of three colors–black, white and red–and were created by using different brightness and contrast. This simple approach is very useful in clinical chemistry as it makes figures and graphs as simple as possible but no simpler like in case of chemical formulas that are indispensable requirements for a clinical chemistry book, the actual structure of the molecules (e.g. bile acids) and their converting enzymes can easily be identified by the different colors. Very helpful parts for laboratorians are the different algorithms e.g. in the investigation of disorders of water electrolyte and acid-base balance for the evaluation of volume status and osmolality.

However, it is somewhat unfortunate that some of the black and white photographs were adapted from previous editions and they might have needed some updating. Even more important for students are the fact that the techniques–very correctly listed–in this edition are utilized at a quite different extent in the recent practice of clinical chemistry. Most likely nobody uses rocket electrophoresis for serum albumin assay and also the double immundiffusion techniques has lost significance compared to the practice used in preceding years. Thus, one might consider some listed techniques as historical assays.

Naturally, the areas that improved the most in the past years has gained more pages in this new edition like the kidney diseases with description of the various forms of dialysis and

their effects on clinical chemistry values as well as the novel markers that had become routine for the bone and mineral disorders. An undoubtedly necessary chapter in recent clinical chemistry textbooks is the Pharmacogenomics session. This new Tietz Fundamentals dicusses this important issue as a prerequisite implicating personalized healthcare in our everyday practice of clinical chemistry. Only those drugs and prodrugs are discussed that are directly related to the field of clinical chemistry and enzyme phenotypes, while the many oncological drugs that also require molecular testing to predict their effectiveness are left for pathology textbooks. The final chapters are the Reference information for the clinical laboratory with conventinal and SI units and age-specific referenge ranges. As in all useful textbooks a Glossary terminates the book making it easy for students to understand all terminologies used.

All in all, it is always a good feeling to look into a new 'gold standard book' that was written by the numerous eminent contributors of todays laboratory medicine. We may only wish that our dicipline will be increasingly chosen by many young colleagues who will continue to benefit from such valuable sources.